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New homes go green

Programs guide the way to building sustainable structures

by Amy Mastin

If you ask Sue Leone about her new home in Elma, N.Y., she fails to mention square footage or the number of bedrooms and baths. Instead, she gushes about the framing made from reclaimed hard pine timbers, the insulated concrete form walls and the clay roof tiles made by a company in nearby Buffalo.

The 49-year-old mother of three farms organically as a hobby, drives a Prius and is passionate about the environment. So when she and her husband Tom, owner of a speaker manufacturing business, decided to build a new home, green was the only way to go. "This is a culmination of a life dream," Sue says of the house and barn scheduled for completion this month. "We wanted to demonstrate that a green home can be attainable and attractive."

The couple began researching green features to incorporate into their new home years ago, but they didn't know a program already existed to show them the way: the U.S. Green Building Council's Leadership in Energy and Environmental Design. Their architect suggested they begin construction using LEED commercial guidelines, and they switched gears when the LEED for Homes pilot program began in August 2005. They now own the first LEED-certified home in western New York.



Photo by Phil Matt — Tom and Sue Leone (front) will move into their New York LEED home, built by Paul and Shelagh Thomas of Berkshire



Local LEED projects

Read about sustainable building and remodeling projects going on throughout the country.

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The LEED for Homes rating system, which officially launched in November, promotes the design and construction of new houses that use less energy, water and natural resources, create less waste and reduce emissions of greenhouse gases. Already, more than 500 homes nationwide are LEED certified and builders or homeowners have registered nearly 13,000 more. "In 2008, we may see as many as 50 homes a day registered and 30 certified — or about 11,000 by year's end," predicts Jay Hall, the program's acting director.

There are roughly 100 local, regional and national green homes rating programs. Representatives from EarthCraft House in the Atlanta area; Earth Advantage in Portland, Ore.; the Florida Green Building Coalition; Built

Taking LEED to extremes

The LEED for Homes certification program is embracing a variety of non-traditional projects, including a homeless shelter, the resurrection of a 200-year-old cabin and a modular home built by high school students.

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Get some green back

Local, state and federal programs offer financial incentives for homeowners to go green. In Parkland, Fla., the city utility office will issue a check for \$150 if low-flow toilets or showerheads are installed. In San Francisco, homeowners get rebates ...

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Homes, this month.

Green Colorado; Austin (Texas) Energy Green Building; and the federal Energy Star program all

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contributed to developing LEED for Homes. It's not the first residential green building program, but many developers agree it's the most comprehensive.

At the rate their residential program is growing, the USGBC predicts 1 million homes will be LEED certified by 2010. McGraw-Hill Construction Research and Analytics predicts green building will make up 5 to 10 percent of the residential market by 2010, making it a \$19 billion to \$28 billion industry.

For Michelle Moore, USGBC vice president of policy and public affairs, there are three important reasons to build or buy a new green home. Topping her list is a family's health and well-being. "That new home smell isn't healthy," she says. "It's actually toxins being released into the air. Green homes have better indoor environmental quality and their owners cite fewer instances of mold and mildew. School children in green buildings have 38 percent fewer incidences of asthma, and 51 percent fewer incidences of cold and flu."


Equally as critical is saving money and the environment, Moore adds. "Green homes, on average, save 30 to 50 percent on energy bills and reduce CO2 emissions by a similar amount. That's a change for the better that literally begins at home."



Courtesy of Sue Leone — Solar panels on the Leones' barn store energy and send excess back into New York's power grid.

Philip Beere of Green Street Development in Phoenix first began hearing about LEED in Arizona State University's master's program in real estate development. Last year he renovated a 1960s home and earned the third LEED gold rating in the country for a single-family gut rehab — stripping the exterior walls down to the framing and rebuilding to LEED specifications. "We're hearing a lot about green homes, but there's been no real standards," Beere says. "LEED is actually testing, inspecting and verifying the product."

In February, the National Association of Home Builders rolled out its National Green Building Program, a ratings process many see as LEED's No. 1 competitor. "People are trying to stake their claim in the marketplace to be the one green building standard," says Carl Seville, an architect/designer and member of NAHB's Green Building Subcommittee. "USGBC's marketing for LEED for Homes was very successful, and NAHB's response was to create a national program to gain some of the market share. It was sort of designed to compete with LEED and take away LEED's domination of the market."



77 percent of Angie's List Quick Poll respondents said they would definitely consider building or purchasing a green home if shopping for a new one, and another **19 percent** might consider it.

NAHB established green building guidelines in 2005 to act as a blueprint for home builders who wanted to start local programs. "We have about 30 local and state programs," says Emily English, NAHB's green building program manager. "The national program will be an umbrella for all of these."

That umbrella encompasses nearly 100,000 homes, but NAHB didn't initially require third-party verification,

a prerequisite for LEED homes. The new program, however, will if the homeowner or builder seeks it. English says the decision to add accredited verifiers is not because of LEED, but in response to rules for receiving tax credits and energy incentives. "There's strict legislation in 42 states requiring proof of green," she says.

A big selling point for the NAHB program is its low price. NAHB bronze, silver, gold

or emerald verification costs between \$200 and \$700. LEED certification can cost up to \$5,000, but as little as \$300 depending on the home's size, level of certification, regional differences and number of consultation hours. The more familiar a builder becomes with LEED, the lower the cost.

NAHB estimates that building to its green guidelines adds about 2 percent to construction costs, while the USGBC says building to LEED specifications adds between 3 and 5 percent. That translates to between \$7,000 and \$10,000 for the average four-bedroom, 2,600-square-foot LEED home. But based on feedback from the pilot project, Hall insists the increase in payments on a 30-year mortgage can be offset entirely by utility savings.

Meredith and Barnett Berry of Hillsboro, N.C., weren't even aware of certification programs until their builder, Michael Chandler, told them about NAHB's green guidelines. He wound up building them a 2,400-square-foot home featuring a solar water heater on the roof that stores enough energy to heat the concrete slab floors. It earned an NAHB gold (or the equivalent of a LEED silver) rating. "We wanted a functional, energy efficient home," Meredith says. "The certificate doesn't mean anything, but the features that earned the rating certainly do."

"All of these local, regional and national programs are needed," Hall says. "LEED focuses on the top 25 percent of new homes in terms of environmental responsibility, those who want to lead the market and be the 'deep green' builders. It's not a competition. There are emerging brands, and different brands serve different needs."

Homeowners want options for building green, agrees Jeff Echols, an Indianapolis architect who's a member of NAHB and studying to be a LEED Accredited Professional. "At the end of the day, each program's goals are similar," he says.

Finding professionals like Echols with experience designing and building sustainable new homes can be a challenge. More than 43,000 building professionals have earned LEED AP status by testing their knowledge of green building and the LEED rating system in the areas of new construction, commercial interiors and existing buildings. A relatively small number of these have residential experience, but the USGBC plans to unveil a LEED for Homes AP program in November. The NAHB established the Certified Green Professional program in early February and counted 32 people among its ranks by month's end.

Other obstacles to building green include financial institutions, which may be hesitant about loaning additional money up front, as a geothermal heating and cooling system is just another HVAC unit to an appraiser. There are also cases of homeowner associations or historical preservationists objecting to the installation of backyard wind turbines or solar panels.



Despite these concerns, green building projects like LEED are multiplying and moving beyond average single-family residences. Western Jubilee Housing, a group similar to Habitat for Humanity, earned a LEED silver rating for an affordable housing project in Grand Rapids, Mich., built by Grand Valley State University engineering students. Faculty housing at Phillips Exeter Academy, a private high school in Portsmouth, N.H., is going for the gold, and a 10,000 square-foot home in Chicago will attempt platinum



Photo by Stephen Brown — Philip Beere's Phoenix kitchen features bamboo floors, concrete countertops and low-flow faucets.

Photo by Cameron Adams — Jay Hall shows off a newly installed, high efficiency furnace in his Annapolis, Md., home.

certification later this year.

The Chicago home raises a question that has dogged USGBC officials: How can such a big house be energy efficient and green? At first, they didn't think it was possible. "With every

doubling of size, a house uses one third more resources," Hall says. "We used to award points for small homes and take away for large ones."

The USGBC has revised the project checklist to include a "home size adjuster." Simply put, big homes need to earn more points in other areas of the checklist.

Sue and Tom Leone racked up LEED points for their 4,300-square-foot home by using lots of recycled material, including cabinets from a century-old convent in Buffalo and countertops made from bits of glass; placing solar panels on the barn, a masonry wood heater in the center of the house and energy efficient lighting throughout; installing dual flush toilets and other water saving devices; and laying toxin-free carpeting, bamboo and cork flooring.

The couple says they need the space because their new farm will soon house a fourth child — they're adopting a 3-year-old girl from Guatemala — and Sue's mother in a handicap-accessible suite. "An efficient home for two or three people will be sized differently than an efficient home for seven," Sue says. "The issue, first and foremost, needs to be creating spaces with energy efficiency in mind. It starts right here, right now, in our own homes."

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